

MEDICAL IMAGING SYSTEMS

ABSTRACT

A medical imaging system provides simultaneous rendering of visible light and fluorescent images. The system may employ dyes in a small-molecule form that remains in a subject's blood stream for several minutes, allowing real-time imaging of the subject's circulatory system superimposed upon a conventional, visible light image of the subject. The system may also employ dyes or other fluorescent substances associated with antibodies, antibody fragments, or ligands that accumulate within a region of diagnostic significance. In one embodiment, the system provides an excitation light source to excite the fluorescent substance and a visible light source for general illumination within the same optical guide that is used to capture images. In another embodiment, the system is configured for use in open surgical procedures by providing an operating area that is closed to ambient light. More broadly, the systems described herein may be used in imaging applications where a visible light image may be usefully supplemented by an image formed from fluorescent emissions from a fluorescent substance that marks areas of functional interest.